Patent Claims

1. A heating device for motor vehicles with an internal combustion engine and with a coolant circuit, the heating device (1) consisting of a heat generation chamber (2) with a cooling jacket (6) around which the coolant flows and with a rotor (13) rotating in the heat generation chamber (2) and fastened on a drive shaft (9), and the cooling jacket (6) being part of a cooling chamber (3) with a coolant inlet connection piece (4) and with a coolant outlet connection piece (5), **characterized** in that a pump wheel (17) driven by the drive shaft (9) is arranged in the cooling chamber (3) for circulating the coolant.

2. The device as claimed in claim 1, **characterized** in that the cooling jacket (6) has a central protuberance (15) which is arranged coaxially to the drive shaft (9) and outside which the pump wheel (17) is arranged and inside which a shaft stub (9c) of the drive shaft (9) is arranged.

3. The device as claimed in claim 1 or 2, **characterized** in that the pump wheel (17) can be driven magnetically by the shaft stub (9c).

4. The device as claimed in claim 3, **characterized** in that permanent magnets (16) are fastened on the circumference of the shaft stub (9c).

5. The device as claimed in claim 3 or 4, **characterized** in that the pump wheel (17) has a hub (17a) which is mounted rotatably on the protuberance (15, 15a) and in which permanent magnets (18) distributed over the circumference are fastened.

6. The device as claimed in claim 3 or 4, **characterized** in that the pump wheel (17) consists of a

magnetizable plastic.

7. The device as claimed in one of claims 1 to 6, **characterized** in that the pump wheel (17, 17a, 17b) is designed as an axial/radial wheel and the coolant inlet connection piece (4) is arranged coaxially to the drive shaft (9).

8. The device as claimed in one of claims 2 to 7, **characterized** in that the protuberance (15, 15a) consists of a nonmagnetizable material.

9. The device as claimed in one of claims 1 to 8, **characterized** in that the cooling chamber (3) is formed from the cooling jacket (6) and from a cover (19) and is designed as a heat exchanger.

10. The device as claimed in claim 9, **characterized** in that the cooling jacket (6) and/or the cover (19) have cooling ribs (20) which form cooling ducts (21) for the coolant.

11. The device as claimed in claim 10, **characterized** in that the cooling ducts (21) run radially outward approximately spirally from the pump wheel (17).

12. The device as claimed in claim 11, **characterized** in that the coolant outlet connection piece (5) is arranged on the cooling chamber radially on the outside.

13. The device as claimed in one of the preceding claims, **characterized** in that the heat generation chamber (2) is filled with a viscous medium, and in that the rotor (13) together with the cooling jacket (6) forms at least one operating gap (14) in which the heat is generated by fluid friction.